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**PATENT**  
**Att'y Dkt: 29287/117**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of:

Toshinori Ono et al.

Serial No.: 09/784,952

Filed: February 16, 2001

For: **MAGNETIC RECORDING MEDIUM,  
THE MANUFACTURING METHOD  
AND MAGNETIC RECORDING  
APPARATUS USING THE SAME**

Examiner: Nikolas J. Uhler

Art Unit: 1773

**DECLARATION UNDER 37 C.F.R. § 1.132**

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

I, Dr. Hiroyuki Suzuki declare and state:

1. I received a Bachelor of Engineering Degree from Tokyo Institute of Technology in 1981 and a Doctor of Engineering from Tokyo Institute of Technology in 1993. From April 1, 1983 to Aug. 20, 1989, I was employed as a researcher at the Central Research Laboratory of Hitachi, Ltd. From Aug. 21, 1989 to March 31, 2003, I worked as an engineer in Odawara Works, Storage and Retrieval System Division, Data Storage Systems Division, which were all Hitachi, Ltd's division dealing with storage products. Between 1993 and 1994 I was a visiting research fellow of University of Central Lancashire, and Keele University, UK. From April 1, 2003 to the present date, I have been employed as an Engineering Manager at Head & Media Business Unit of Hitachi Global Storage Technologies Japan, Ltd. During my whole working career I

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have been involved in the magnetic disk technology. During my career, I have published over 20 papers, including a publication in the Journal of Magnetism and Magnetic Materials 155 (1996) 196-198.

2. I have reviewed a copy the specification of U.S. Pat. Application No. 09/784,952, as well as selected papers from the prosecution file for this application. I have also reviewed the Office Action of June 18, 2004, which rejects claims 1-2, 12-13 and 15-16 under 35 USC 103 over Yokosawa (USP 6,001,479) in view of Ootake (USP 5,958,542) and Veerasamy (USP 6,303,225). In the Office Action, the Examiner asserts that Veerasamy includes evidence that doping a DLC film with nitrogen results in the formation of  $\text{NH}_2$  reactive groups on the surface of the film. The Office Action then takes the position that this teaching will result in the DLC film of Yokosawa as modified by Ootake will have 35  $\text{NH}_2$  groups per 100 carbon atoms.

3. One of skill in the art would not apply the teachings of Veersamy to Ootake as suggested. Specifically, sputtering and doping are different processes and the percentage of an atom achieved by one can not simply be achieved by the other process. Also, nitrogen in the DLC layer is formed by sputtering in Ootake, and such sputtering cannot create amine  $\text{NH}_2$  functional groups as suggested in the Office Action. The reasons are set forth in the following paragraphs.

4. Doping is a process that introduces impurity elements (dopants) into a wafer, while sputtering is a process that deposits a layer onto a wafer by bombarding a target material with plasma. So a process formed by sputtering can not be replaced by doping. Sputtering is a process to actually form a layer, while doping is a process that adds the dopants in a layer that has already been made.

5. Column 4 line 15 - 16 in Ootake depicts that the sputtered carbon containing nitrogen preferably contains nitrogen in an amount of from 10 to 35%. This process can not create amine  $\text{NH}_2$  functional groups as suggested, since there is no H that can create the N - H bonds.

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I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine, or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: Sept. 03 / 2004 Signature: Hiroyuki Suzuki  
Dr. Hiroyuki Suzuki